Bemidji State University

GEOL 1120: Intro to Fossils and History of Planet Earth

A. COURSE DESCRIPTION

Credits: 4
Lecture Hours/Week: 0
Lab Hours/Week: 0
OJT Hours/Week: *.*
Prerequisites: None
Corequisites: None

MnTC Goals: Goal 03 - Natural Science

The course focuses on the study of fossils and the application of fundamental geologic principles to decipher Earth’s history: understanding Earth materials and processes, fossils identification and classification, geologic time, and the conditions that led to the major events (extinctions, diversifications, and environmental transitions) in the history of life. Lecture and laboratory. [Core Curriculum Goal Area 3 (LC)]

B. COURSE EFFECTIVE DATES: 05/04/2024 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Introduction, How we interpret Earth's history. Some basic geologic principles. Earth’s structure.
2. Rock-forming minerals—formation of igneous rocks.
3. Formation of sedimentary and metamorphic rocks.
4. Stratigraphic principles,
5. Absolute geologic time,
6. Fossils—formation and interpretation
7. Diversity of life
8. Interpretation of fossils. Paleoecology and organic evolution.
9. Understanding mountains and ocean basins
10. Understanding mountains and ocean basins.
12. Cambrian and Ordovician History
13. Silurian and Devonian History
14. Late Paleozoic History
15. Triassic and Jurassic history
16. Cretaceous history
17. Cenozoic history
D. LEARNING OUTCOMES (General)
   1. recall or recognize selected geological terms and concepts from the topics covered and employ them in understanding and explaining topics.
   2. analyze physical properties, textures and other properties to classify igneous, sedimentary and metamorphic rocks.
   3. identify common sedimentary rocks and structures, and describe and interpret their origin.
   4. differentiate between the three types of plate boundaries by noting common geologic features and processes.
   5. identify, classify, and recognize fossils, and describe the processes of fossilization.
   6. describe the scientific use of fossils and characteristics of sedimentary rocks to interpret and reconstruct past environments.
   7. apply the principles of relative dating to interpret the geologic history of a given region and understand the application of radiometric dating to the geologic time scale.
   8. describe the process of reconstructing geologic history of Earth based on rock types, structures, fossils, and other geologic evidence, focused on North America.
   9. illustrate the factors that caused the major events (extinctions, diversifications, and environmental transitions) in the history of life.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   Goal 03 - Natural Science
   1. Demonstrate understanding of scientific theories.
   2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
   3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted